

MONOGRAPHY
OF THE
FAMILY UNIONIDÆ,

OR NAIADES OF LAMARCK,
(FRESH WATER BIVALVE SHELLS,)

OF
NORTH AMERICA,

ILLUSTRATED BY FIGURES DRAWN ON STONE FROM NATURE.

BY T. A. CONRAD,
CURATOR OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, HONORARY MEMBER OF
THE GEOLOGICAL SOCIETY OF PENNSYLVANIA

PHILADELPHIA
J. DOBSON, 108 CHESNUT STREET.
1836.

E. G. DORSEY, PRINTER,
12 Library Street.

TO

CHARLES A. POULSON, Esq.

Member of the Academy of Natural Sciences of Philadelphia, &c.

THIS BOOK IS DEDICATED,

AS A SLIGHT TRIBUTE OF ESTEEM,

BY HIS OBLIGED FRIEND,

THE AUTHOR.

INDEX.

			PAGE.	PL.	FIG.
UNIO FASCIATUS,	-	-	3	1	1
OVATUS,	-	-	4	2	
CLAVA,	-	-	5	3	1
DECISUS,	-	-	6	3	2
REFLEXUS,	-	-	7	4	1
FLEXUOSUS,	-	-	8	4	2
PHILLIPSII,	-	-	9	5	1
METANEVRUS,	-	-	10	5	2
MORTONI,	-	-	11	6	1
FRAGOSUS,	-	-	12	6	2
COSTATUS,	-	-	17	7	
RETUSUS,	-	-	19	8	
PARVUS,	-	-	20	9	1
GLANS,	-	-	21	9	2
SILIQUOIDEUS,	-	-	22	10	1
RADIATUS,	-	-	24	10	2
PECTOROSUS,	-	-	25	11	1
FASCIOLUS,	-	-	26	11	2
CONGARÆUS,	-	-	27	12	1
MASONI,	-	-	28	12	2
Coccineus,	-	-	29	13	1
CATILLUS,	-	-	30	13	2
PRODUCTUS,	-	-	31	14	1
LANCEOLATUS,	-	-	32	14	2
RECTUS,	-	-	33	15	
GRASSUS,	-	-	34	16	
VIRIDIS,	-	-	35	17	1
OCHRACEUS,	-	-	37	17	2
NASUTUS,	-	-	38	18	1
ICTERINUS,	-	-	39	18	2
CARIOSUS,	-	-	40	19	
MYTILOIDES,	-	-	41	20	
DILATATUS,	-	-	42	21	
TUBERCULATUS,	-	-	43	22	
DECLIVIS,	-	-	45	23	1
BLANDINGIANUS,	-	-	46	23	3
PERSONATUS,	-	-	47	24	
CORDATUS,	-	-	48	25	

		PAGE.	PL.	FIG.
UNIO NIGER,	-	49	26	
GIBBOSUS,	-	50	27	1
PEROBLIQUUS,	-	51	27	2
TERES,	-	52	28	
SAGERI,	-	53	29	1
LAPILLUS,	-	54	29	2
FRAGILIS,	-	55	30	
ALATUS.	-	56	31	
INFLATUS,	-	57	32	
LEPTODON,	-	58	33	
ELLIPSIFORMIS,	-	60	34	1
LIENOSUS,	-	60	34	2
STAPES,	-	62	35	1
INTERMEDIUS,	-	63	35	1
OCCIDENTALIS,	-	64	36	1
COLLINUS,	-	65	36	2
SOWERBYANUS,	-	66	37	1
POLITUS,	-	67	37	2
NEXUS,	-	68	38	1
GREENII,	-	69	38	2
SHEPARDIANUS,	-	70	39	
COMPRESSUS,	-	71	40	1
CAPSIFORMIS,	-	72	40	2
SUBPLANUS,	-	73	41	1
FLAVUS,	-	74	41	2
CAPAX,	-	75	42	
RUDIS,	-	76	43	1
OBLIQUUS,	-	77	43	2
APICULATUS,	-	78	44	1
PRASINUS,	-	79	44	2
NODULATUS,	-	80	45	1
BULLATUS,	-	82	45	2
STEGARIUS,	-	83	46	1
DROMAS,	-	84	46	2
SUBTENTUS,	-	85	47	1
ACUTISSIMUS,	-	86	47	2
CONRADIUS,	-	87	47	3
INTERRUPTUS,	-	88	48	
PLEXUS,	-	89	49	1
HETERODON,	-	90	49	3
LIENOSUS,	-	91	49	4
STRAMINEUS,	-	91	50	1
FATULUS,	-	92	50	2
HEMBELLI,	-	93	51	1

MONOGRAPHY
OF THE
FAMILY UNIONIDÆ

UNIO.

GENERIC CHARACTER.

Shell equivalved, inequilateral: cardinal teeth two in each valve, irregular, generally striated, simple or biparted; an elongated lamelliform tooth on the posterior hinge margin of the right valve, and two similar teeth on the corresponding margin of the left valve: muscular impressions two principal ones in each valve.

OBSERVATIONS.

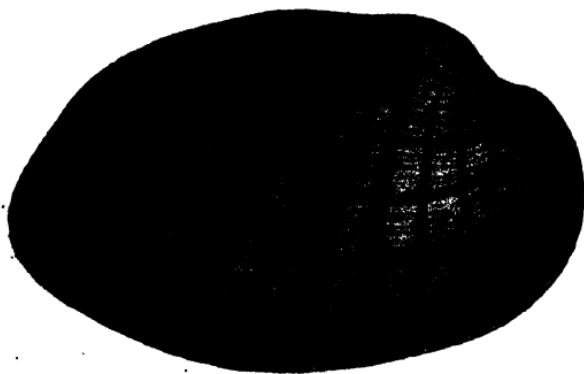
Mr. Say justly remarks, that, "in North America, the shells of this genus excel those of any other country in magnitude, beauty, and diversity of species." The rivers of Tennessee have furnished the most beautiful specimens of many species common to the western waters. The Ohio or Mississippi has

not hitherto furnished a single species existing in tide waters which flow into the Atlantic; and the only shell of this character is the *Alasmodontia marginata*, SAY.

The shells of this genus may be divided into two groups, the “winged” and “not winged,” as Mr. Sowerby has proposed for the whole family of UNIONIDÆ. The former are included in the genus *Sympynota*, of Mr. Lea, which we cannot adopt, because, as Ferussac justly remarks, “in the same family generic characters should be taken from the same parts;” thus the other genera are formed from the absence or arrangement of the hinge teeth, whilst *Sympynota*, without any regard to the hinge, is constructed from a testaceous connexion of the valves, which Ferussac observes is “almost an organic character among the ACEPHALA which have the mantle completely closed near the hinge margin, at least in young shells.”

Dr. Kirtland has made some interesting remarks on the sexes of this family, in which he has proved them to be distinct, in the opinion of many conchologists; and the sex can be ascertained by the form of the shell. Almost every species has two prominent varieties of form, one of which is shorter and more ventricose than the other, which is happily explained by the observations of the intelligent author of the essay referred to.*

*Vide Silliman's Journ. vol. xxvi. p. 117.



UNIO FASCIATUS.

PLATE I.

DESCRIPTION.

Shell elliptical, compressed, yellowish olive, with broad dark green rays, and a few intermediate narrow rays; umbo slightly compressed, little prominent; anterior side short; ligament margin scarcely curved, slightly declining; posterior margin obliquely truncated; umbonal slope abruptly rounded; submargin slightly furrowed; basal margin protruding a little near and behind the middle; within white; cardinal teeth thick, direct; margin thin, showing the exterior rays.

SYNONYMES.

U. FASCIATUS, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 28.
Poulson's translation, p. 20. *Say*, Amer. Conch. No. 6.
Ferussac, Mag. de Zool.

U. CARINATUS, *Barnes*. Silliman's Journal, vol. vi. p. 126.
Cab. A. N. S. No. 1020.

OBSERVATIONS.

This shell has been considered a variety of *carinus* by some conchologists, but it is invariably more ponderous and compressed, with very different markings and cardinal teeth. It is most nearly related to the *crassus*, *SAY*, but can be distinguished by its more elliptical outline, much broader and darker rays, and by the beaks being less nearly terminal. *Ferussac* gives *carinatus*, *Barnes*, as a synonyme to *crassus*, *SAY*. Common in the western waters. The

figure is from a specimen from the Scioto, given me by my friend, Dr. William Blanding.

UNIO OVATUS.

PLATE II.

DESCRIPTION.

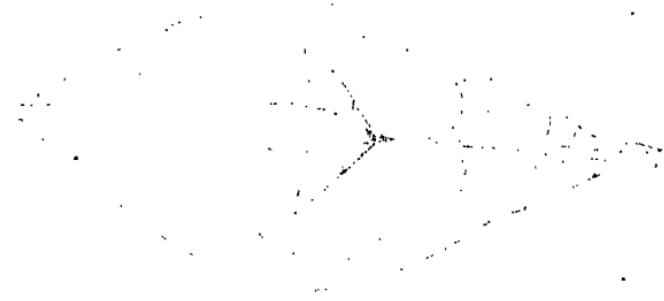
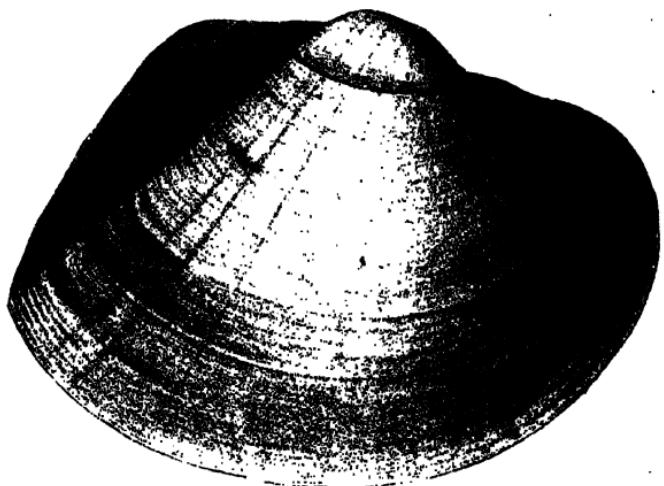
Shell subtriangular, rather thin, compressed anteriorly, inflated over the umbonal slope, which is profoundly angulated and subrectilinear; posterior slope flattened or slightly concave, much wrinkled; umbo inflated, prominent, sloping anteriorly, distant from the anterior margin; surface glabrous, olive-yellow; within bluish; cardinal teeth double in each valve, very oblique, compressed, elevated.

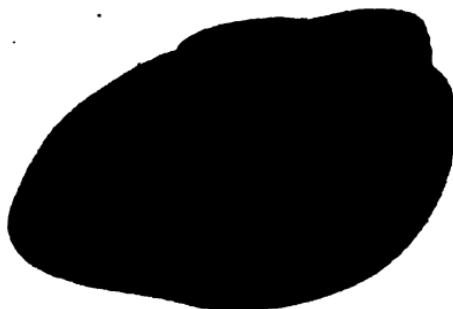
SYNONYMES.

U. ovatus, Say. Nicholson's Ency. (3d Amer. ed.) art. Conch. pl. ii. fig. 7. *Lam. An. sans vert.* vol. vi. p. 75.
Cab. A. N. S. No. 1225.

OBSERVATIONS.

The great depression of the posterior slope distinguishes this species from the *cardium*, RAF. Old shells are produced posteriorly. It varies considerably in form; some specimens are compressed, others very ventricose, with rather broad radii over the whole disk. This variety is so dissimilar to the specimen figured, that I propose to designate it by a distinct name, terming it variety *ornatus*; it is common in the rivers of South Alabama. The species is common in the western waters.





UNIO CLAVA.

PLATE III.—FIG. 1.

DESCRIPTION.

Shell cuneiform, very oblique; posterior side produced, compressed, with an oblique furrow rapidly widening from the umbo; ligament margin arcuate, very oblique; umbo elevated, narrowed, inclining forwards; beaks curved to a point, terminal; epidermis wrinkled, olive-yellow or brownish, with interrupted rays over the umbo, disappearing with age; within white, very iridescent posteriorly; cardinal tooth in the left valve nearly parallel with the ligament margin.

SYNONYMES.

U. CLAVA, *Lam.* An. sans vert. vol. vi. p. 74.

U. SCALENIUS, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 43. pl. lxxxi. fig. 24, 25. Poulson's trans. p. 47.

U. MODIOLIFORMIS, *Say.*

Cab. A. N. S. No. 1117.

OBSERVATIONS.

A beautiful species when perfect, and common in the western rivers. With age the posterior side becomes greatly produced and compressed, and generally furnished with irregular indentations. Allied to *U. oviformis*, *nob.* and *decisus*, *LEA*.

UNIO DECISUS.

PLATE III.—FIG. 2.

DESCRIPTION.

Shell cuneiform, oblique; anterior margin obtusely rounded; posterior side produced, somewhat compressed, with a very oblique indistinct furrow, and irregular indentations, frequently obsolete; extremity angular; beaks nearly terminal, eroded; umbonal slope rectilinear, subangulated; epidermis finely wrinkled inferiorly, reddish-brown with obsolete brown narrow rays; within white.

SYNONYMES.

U. DECISUS, *Lea*. Trans. Amer. Philos. Soc. new series, vol. iv. p. 92, pl. xii. fig. 23.

U. TAITIANUS, *ib.* vol. v. p. 39, pl. iv. fig. 11. variety.

Cab. A. N. S. No. 1733.

OBSERVATIONS.

This species much resembles the preceding, but can always be distinguished by its broader and less oblique umbo, uniform absence of green rays, and by its rectilinear umbonal slope, but more especially by the posterior extremity, which is never so nearly on a line with the base as in the former shell, which with age is greatly produced and compressed, whilst the present species, when old, never becomes so; the cardinal teeth, also, are very different. Common in the Alabama river, and has hitherto been found only in the state of Alabama.

UNIO REFLEXUS.

PLATE IV.—FIG. 1.

DESCRIPTION.

Shell suboval, thick anteriorly; middle of the disks with a single row of distant elevated tubercles, about four in number; umbo not very prominent, submedial; umbonal slope subcarinated; posterior side slightly furrowed and emarginate at base; posterior slope flattened, with transverse undulations; posterior extremity truncated; within white; cardinal teeth large, direct, much sulcated.

Var. A. disks covered with small tubercles.

Var. B. epidermis blackish, nacre purple.

SYNONYMES.

U. REFLEXUS, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 40.
Poulson's trans. p. 40. *Say*, Amer. Conch. No. 6. *Ferussac*,
Mag. de Zool.

U. CORNUTUS, *Barnes*. Silliman's Journ. vol. vi. p. 122.
Cab. A. N. S. No. 1750.

OBSERVATIONS.

Allied to the *U. flexuosus*, but approaches nearest to *U. gibbosus*, *RAF.*, yet may always be distinguished from that species by its suboval outline, and the regularity and prominence of its tubercles. The two varieties I found in the Alabama river. The figure represents a tuberculated specimen. The species preserves its distinctive characters in very

remote localities, specimens from south Alabama perfectly resembling others from the waters of Indiana.

UNIO FLEXUOSUS.

PLATE IV.—FIG. 2.

DESCRIPTION.

Shell subtriangular, bifurcated, swelling and subnodulous in the middle; posterior side with a wide oblique furrow; umbonal slope obtusely carinated; umbo flattened, prominent; epidermis with numerous slender rays; within white, cardinal teeth direct, sulcated; lateral teeth short and thick.

SYNONYMES.

U. FLEXUOSUS, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 40.

U. FOLIATUS, *Hildreth*. Silliman's Journ. vol. xiv. p. 248, fig. 16.

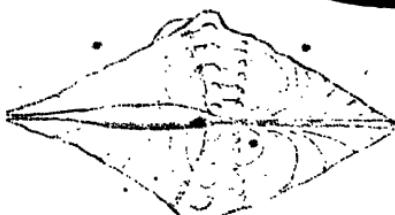
Cab. A. N. S. No. 1050.

OBSERVATIONS.

A specimen of this shell in Mr. Poulson's cabinet was labelled by Rafinesque, whose description, under the name we have adopted, entirely accords with the species before it has attained its profound bifurcation.

This singular species, when young, is smooth, and simply emarginate behind the middle. It approaches nearest to *U. gibbosus*, *RAF.* Not uncommon in the western rivers.





UNIO PHILLIPSII.

PLATE V.—FIG. 1.

DESCRIPTION.

Shell subovate, with concentric furrows; anterior side smooth; disk with a single row of irregular tubercles in the centre, some of which are elongated and grooved; posterior side narrowed, with a wide furrow and a few small tubercles; umbonal slope straight, carinated and tuberculated; posterior slope concave, indistinctly tuberculated; ligament slope rectilinear, oblique; extremity direct, emarginate; basal margin swelling centrally, emarginate behind; umbo prominent, rather broad, flattened at the summit; beaks retuse; epidermis yellowish-brown, with indistinct filiform rays over the umbo; within white; cardinal teeth rather small, direct, double in each valve.

OBSERVATIONS.

This handsome species is allied to *U. quadrulus*, Raf., but is very distinct, the young shell having broad smooth and retuse beaks, whilst the young of the *quadrulus* has the beaks narrowed, tuberculated, pointed and curved forwards. The specimen figured is from the Wabash, and is in the cabinet of Mr. John Phillips, who called my attention to it as a distinct species, and I have dedicated to him a small tribute of respect for his talents and scientific zeal.

UNIO METANEVRUS.

PLATE V.—FIG. 2.

DESCRIPTION.

Shell suboval, thick, ventricose; anterior side tuberculated, except near the margin, which is smooth; disk with an oblique furrow; umbonal slope very prominent, broad and rounded, with numerous tubercles, some of which are very large; posterior slope wide, concave, or angular, with oblique slightly recurved series of rib-like tubercles; umbo slightly prominent; beaks retuse; ligament margin oblique, rounded at the extremity; posterior margin emarginate; epidermis yellowish-brown, with interrupted green rays; within white, much thickened anteriorly.

SYNONYMES.

U. METANEVRA, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 39.
Ferussac, Mag. de Zool.
U. NODOSUS, *Barnes*. Silliman's Journal, vol. vi. p. 124, pl. vi.
 fig. 7.
Cab. A. N. S. No. 1754.

OBSERVATIONS.

A common species in the western and southern rivers, easily recognised, when in perfection, by its swelling umbonal slope: very old specimens much resemble *U. stapes*, *LEA*, but are much larger.

UNIO MORTONI.

PLATE VI.—FIG. 1.

DESCRIPTION.

Shell suborbicular, not thick, ventricose; disk flattened, or slightly furrowed from beaks to base, covered with irregular tubercles; anterior margin subtruncated; posterior margin straight, direct; ligament margin subarcuate, oblique, forming an angle with the posterior margin; umbo with an oblique furrow, prominent; beaks rather retuse, decorticated; umbonal slope angular, slightly arcuate; posterior slope flattened; epidermis yellowish brown, with fine crowded wrinkles; within white; anterior margin not thickened; cardinal teeth compressed, very prominent, oblique.

Cab. A. N. S. No. 1874.

OBSERVATIONS.

This pretty species is common in Bayou Teche, Louisiana; but I have seen it from no other locality; it approaches nearest to the *quadrulus*, RAF., but differs greatly in size, convexity, and want of a distinct furrow from beak to base. It is dedicated to my friend Dr. S. G. Morton, whose exertions have furnished a splendid collection of American and foreign fresh water shells to the Academy of Natural Sciences.

UNIO FRAGOSUS.

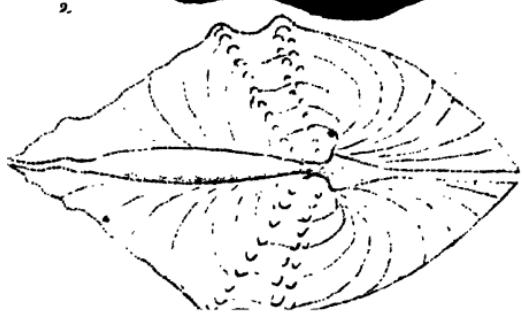
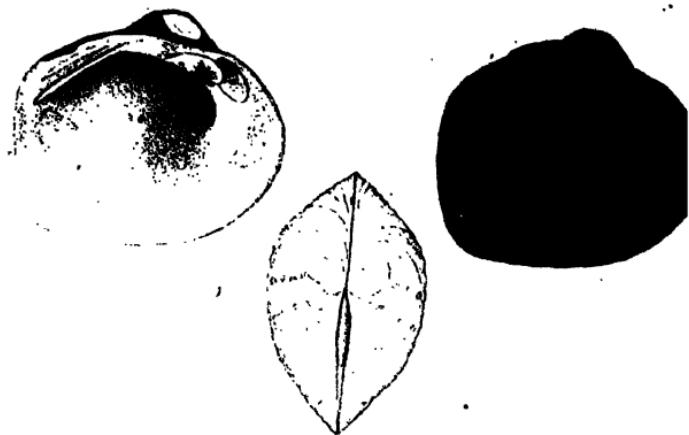
PLATE VI.—FIG. 2.

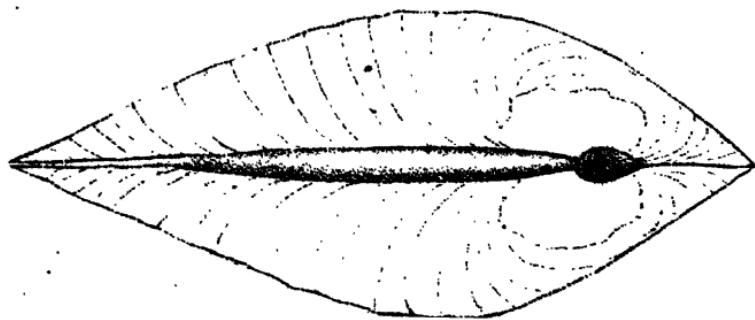
DESCRIPTION.

Shell suborbicular, ventricose, with an indistinct narrow furrow, and two approximate series of very prominent irregular tubercles, anterior ones largest; umbonal slope angular; posterior slope slightly concave, with a few narrow rib-like tubercles, more prominent near the margin; posterior margin direct, slightly emarginate; ligament slope straight, slightly oblique; umbo narrow, prominent; beaks much incurved, pointed, tuberculated; epidermis brown, with two or three broad, widely interrupted green rays.

OBSERVATIONS.

This fine species approaches *quadrulus*, Raf., but is much more ventricose, has more prominent tubercles, and is very distinct. I am indebted to Dr. Blanding for the splendid specimen represented by the figure; it is from the Scioto river, Ohio.





UNIO COSTATUS.

PLATE VII.

DESCRIPTION.

Shell suboval, slightly ventricose anteriorly; disk with profound oblique undulations, numerous and recurved behind the umbonal slope; umbo narrow, slightly prominent, oblique, nearly terminal; ligament margin elevated, nearly straight; epidermis yellowish brown, sometimes blackish brown, much wrinkled posteriorly; within white, iridescent posteriorly, waved on the margin; cardinal teeth very thick.

SYNONYMES.

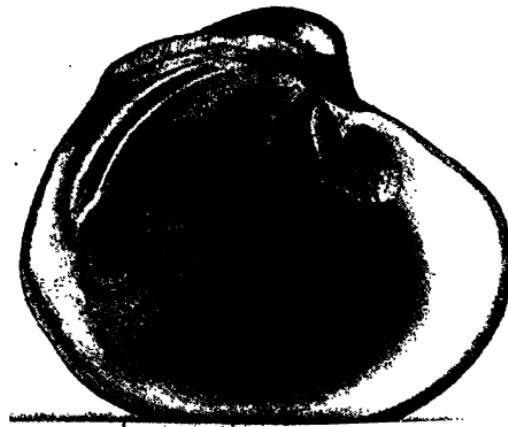
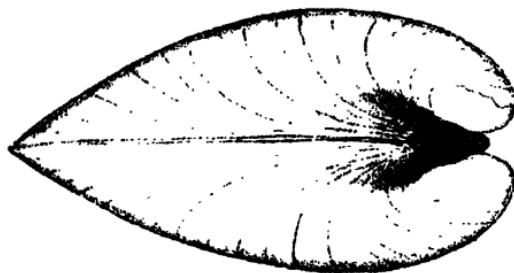
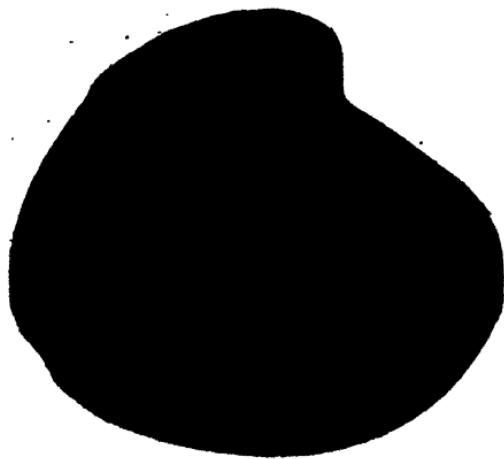
U. COSTATUS, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 49. pl. lxxxii. fig. 13, 14. *Poulson's trans.* p. 57. *Say*, Amer. Conch. No. 6. *Ferus*. Mag. de Zool.

U. UNDULATUS, *Barnes*. Silliman's Journ. vol. vi. p. 121, pl. 2.

OBSERVATIONS.

This shell very nearly approaches *U. plicatus*, *SAY*, and some varieties can scarcely be distinguished from it. It has, in general, more undulations, a much less prominent umbo, is less ventricose, and has often a yellowish epidermis, which is not the case with the *plicatus*. Not uncommon in the western waters, and in the Alabama river; very large and fine in the rivers of Tennessee.

This species in some of its varieties so nearly resembles *U. heros*, of SAY, when the latter is old and eroded on the umbones, that Mr. SAY at one time considered them identical; the young shell of the *heros*, however, was found to be so entirely dissimilar to the young of the *costatus*, that the specific difference was obvious to the most careless observer, and Mr. SAY in his synonymy retains his species. This circumstance should induce those naturalists who live in favourable situations to study the young of every species, for as Mr. LEA has justly observed, they are the most certain guides to specific distinctions; when the umbones and beaks are perfect, most species will exhibit very nearly the prominent characters of the very young shells, and hence the necessity of procuring cabinet specimens of the most perfect description, if we would effectually trace the species and make ourselves acquainted with their affinities.



UNIO RETUSUS.

PLATE VIII.

DESCRIPTION.

Shell transversely ovate, ventricose, with concentric furrows; umbo very prominent, curved forwards; beaks retuse, medial; ligament long and prominent; umbonal slope rounded, undefined; anterior and basal margins regularly rounded; posterior side with a slight furrow, and emarginate at the extremity; ligament slope arcuate, very oblique; within dark purple, margined with white.

SYNONYMES.

U. RETUSA, *Lam.* An. sans vert. vol. vi. p. 72. *Ferus.* Mag. de Zool.

U. TOSA, *Raf.* Ann. gen. des Sc. Phys. vol. v. p. 45. pl. lxxxii. fig. 1, 2, 3. *Poulson's trans.* p. 40.

OBSERVATIONS.

This fine species is remarkable for the elegance of its form, and the prominent curved beaks which somewhat resemble those of an *Isocardia*. The colour of the nacre is remarkably constant. One variety is deeply sulcated and emarginate posteriorly; another is entire. Young shells much resemble *U. subrotundus*, *Raf.* Common in the western waters. I did not observe it in Alabama.

UNIO PARVUS.

PLATE IX.—FIG. 1.

DESCRIPTION.

Shell oblong or elliptical, with prominent concentric lines, and slightly contracted from beak to base; inflated posteriorly and the basal margin dilated and rather abruptly ascending to the extremity, which is narrow, obtuse, and much above the line of the base; umbo when not decorticated, profoundly sulcated; umbonal slope undefined; posterior slope with a submarginal, slightly prominent line; ligament margin not oblique; posterior margin obliquely truncated above; within white; cardinal teeth very erect.

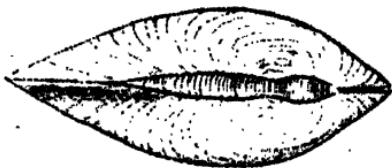
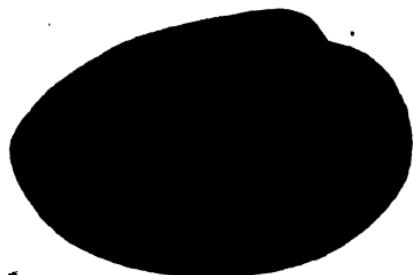
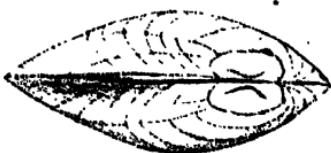
SYNONYMES.

U. PARVUS, *Barnes*. Silliman's Journal, vol. vi. p. 174.
Cab. A. N. S. No. 1872.

OBSERVATIONS.

A small species, without any prominent character, yet very distinct. It approaches nearest to *U. lienosus*, nob. but that species is always more or less radiated and generally pink or purple in the interior; the *parvus* is white within and rarely rayed. Inhabits western rivers generally from Bayou Teche in Louisiana to Fox river in the North Western Territory.

An elegant specimen from the Scioto river is dark olive-green and distinctly rayed; and the acutely angulated ridges on the beaks are very perfect.



UNIO GLANS.

PLATE IX.—FIG. 2.

DESCRIPTION.

Shell ovate-elliptical, thickened anteriorly; surface with numerous concentric lines; anterior side short; posterior side subcuneiform; umbo slightly prominent; beaks undulated; umbonal slope undefined; epidermis generally dark brown, sometimes rayed; within dark purple, except on the anterior margin; cardinal teeth prominent, direct.

SYNONYMES.

U. GLANS, *Lea.* Trans. Amer. Philos. Soc. new series, vol. iv. pl. viii. fig. 12.
Cab. A. N. S. No. 1168.

OBSERVATIONS.

This does not appear to be an abundant species, yet it is occasionally found in the waters of Ohio, Tennessee and Alabama. In the latter state I met with it only in the tributaries of the Tennessee river. The purple nacre and white anterior margin will always distinguish this species from any other, which resembles it in form. Another peculiarity is the posterior tooth of the left valve pointing to the posterior extremity, which causes the teeth to diverge greatly. It most resembles *U. lienosus*, nob. and *U. parvus*, BARNES. The figure represents the largest and best specimen I have seen, and the only one that is distinctly rayed; it is from the Harpeth river, Tennessee.

UNIO SILIQUOIDEUS.

PLATE X.—FIG. 1.

DESCRIPTION.

Shell ovate-oblong or elliptical, ventricose, moderately thick; surface glabrous, olive-yellow, with numerous green rays varying much in size; anterior side not very short, margin regularly rounded; ligament margin straight, not declining; posterior extremity angulated; umbonal slope undefined; beaks with flexuous undulations; within bluish-white; cardinal teeth oblique, lateral teeth slightly decurved posteriorly.

SYNONYMES.

U. siliquoideus, Barnes. Silliman's Journ. vol. vi. p. 269.

U. inflatus, Ib. p. 267.

Cub. A. N. S. No. 1055.

OBSERVATIONS.

The species which most resembles this appears to be the *radiatus*, which for comparison we figure upon the same plate. Young specimens differ constantly from the *radiatus* in having a straw-coloured highly polished epidermis, and much undulated beaks; are more inflated, have the anterior side longer and the margin more regularly rounded. The sexual varieties are far more strongly marked, some specimens having almost the form of *U. cariosus*, whilst the *radiatus* offers comparatively slight differences of outline. Old shells become thick and much inflated, and

resemble in form the *U. teres*, Raf. common in the western rivers. I did not observe it in Alabama.

Mr. Say, in his synonymy of the western species, has given the *siliquoideus* as a synonyme of *U. cariosus*, considering it a mere variety of that species, and more strangely merges the *radiatus* in the same. We have seen abundance of both the latter and *cariosus*, in the Schuylkill and Delaware, but never any varieties of either which could for one moment have led us to confound the two species. Mr. Lea informs us that a specimen of the *siliquoideus* in the Garden of Plants at Paris, is labelled *luteola* of Lamarck; this name we should have adopted if FERUSSAC had not referred Lamarck's specimen of *luteola* to *cariosus*, of SAY, which we presume to be correct, as that distinguished naturalist is well acquainted with those species which are common in the United States.

In Bayou Teche there occurs a beautiful species allied to this if it be not a variety; it is distinguished by a darker epidermis, with distant and dark green rays of nearly uniform size. We have not seen many specimens, but a figure of it will be given when its characters shall be determined and its affinity with the *siliquoideus* clearly ascertained.

UNIO RADIATUS.

PLATE X.—FIG. 2.

DESCRIPTION.

Shell oblong-ovate, thin, slightly compressed on the anterior side; surface with fine wrinkled lines and distinct furrows; olive, with numerous green rays, varying in size; anterior side short and narrowed; margin abruptly rounded; posterior side dilated; ligament margin elevated, slightly curved; anterior basal margin slightly contracted; umbonal slope undefined; posterior extremity subtruncated; within yellowish or salmon coloured, and thickened anteriorly; bluish and highly iridescent posteriorly.

SYNONYMES.

U. RADIATA, *Lam.* An. sans vert. vol. vi. p. 73.
Barnes. Silliman's Journ. vol. vi. p. 265.
MYA RADIATA, *Spengl.* *Gmel.*
U. VIRGINIANA, *Lam.* An. sans. vert. vol. vi. p. 79.
U. OBLONGATA, *Wood.* Suppl. Index. Test.
Cab. A. N. S. No. 1116.

OBSERVATIONS.

A common species in the tide waters of the middle states, and very abundant in those of Virginia, but it has not been found in any of the tributaries of the Mississippi, except the Ouisconsin river, where, according to Mr. Barnes, it was obtained by Mr. Schoolcraft. This naturalist remarks that it inhabits Saratoga lake.

UNIO PECTOROSUS.

PLATE XI.—FIG. 1.

DESCRIPTION.

Shell elliptical, inflated, moderately thick, yellowish or olive, with unequal green rays, the larger rays having distant dark spots; anterior side compressed, extremity acutely rounded; ligament margin parallel with the base; umbonal slope angular; umbo broad, prominent, summit obtusely rounded; beaks distant from the anterior extremity; within white, with a wide greenish margin; cardinal teeth thick, prominent, direct; cardinal plate dilated.

SYNONYME.

U. PECTOROSUS, Nob. New fresh water shells, p. 37. pl. vi. fig. 1.
May, 1834.

U. PERDIX, Lea. Trans. Amer. Philos. Soc. new series, vol. v.
p. 72. pl. xi. fig. 31. Sept. 1834.
Cub. A. N. S. No. 2102.

OBSERVATIONS.

This shell has so nearly the outline of *U. fasciolus*, that I have figured both on the same plate for comparison. It differs from that species in the rays, dilated cardinal plate, &c. It is allied to *U. ovatus*, Say, but is much more elongated. The specimen represented has double cardinal teeth in each valve, but the character is not permanent. It is in the splendid collection of Mr. Poulsen, and was found in the Harpeth river, Tennessee. I obtained a few specimens

on the bank of Elk river, Alabama, in which the epidermis was dark and the rays obscure. Mr. Lea compares it with the *crassus*, Say, but we cannot find any point of resemblance.

UNIO FASCIOLUS.

PLATE XI.—FIG. 2.

DESCRIPTION.

Male. Shell elliptical, inflated, yellowish, with numerous unequal flexuous green rays; anterior margin regularly, not obtusely rounded; posterior extremity angulated; ligament margin slightly declining; umbo wide, prominent; beaks retuse, distant from the anterior extremity; umbonal slope obtusely rounded; within white; cardinal teeth prominent, diverging; margin horn-coloured, shewing the exterior rays.

Female. Short ovate; posterior side dilated; umbo narrower and more oblique; ligament margin elevated.

SYNONYMES.

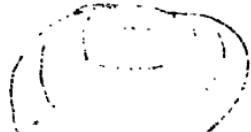
U. FASCIOLUS. *Raf.* An. gen des Phys. Sec. vol. 5. p. Poulsen's trans. p. 28. *Say.* Amer. Conch. No. 6.

U. MULTIRADIATUS, *Lea.* Trans. Amer. Philos. Soc. new series. vol. 3. p. 48. pl. ix. fig. 15.

Cab. A. N. S. No. 1429.

OBSERVATIONS.

Distinguished by its numerous unequal green undulated rays; without these the female might be



mistaken for *U. cariosus*. Old shells are very thick and ponderous, and Mr. Poulsen has a fine specimen of this description. Had the Baron de Ferussac seen this, we think he would not for a moment have deemed it a variety of *U. subovatus*. Mr. Phillips has two fine specimens, male and female; the former is represented.

UNIO CONGARÆUS.

PLATE XII.—FIG. 1.

DESCRIPTION.

Shell elliptico-rhomboidal, thin, somewhat flattened at the sides; epidermis olive or reddish-brown, with numerous green rays, sometimes obsolete; umbones flattened, broad; summits obtusely rounded, slightly prominent; umbopial slope profoundly angulated; ligament slope slightly oblique; posterior slope much depressed, with oblique, irregular, undulated lines; within white, highly iridescent; cardinal teeth oblique; lateral teeth elongated, slightly curved.

SYNONYME.

U. CONGARÆUS, *Lea*. Trans. Amer. Philos. Soc. new series, vol. 4. p. 72. pl. vi. fig. 4.
Cab. A. N. S. No. 2101.

OB~~S~~RVATIONS.

Inhabits the eastern waters of South Carolina. I found it also at Augusta, Georgia, in great numbers.

It certainly approaches *U. niger*, Raf.; the young of the latter resembling it so much, as to lead to the inference that they may be varieties of one species, occasioned by difference of locality. Specimens from Augusta resemble the *niger* more than those from the Congaree river; and in Flint river, Georgia, is a variety of the latter, differing only from the *congarœus* in being rather larger and more ponderous.

UNIO MASONI.

PLATE XII.—FIG. 2.

DESCRIPTION.

Shell suboval, thin; umbones broad, inflated, disks slightly flattened near the umbonial slope; beaks distant from the anterior margin; ligament margin elevated; umbonial slope angulated; epidermis olivaceous, polished, wrinkled inferiorly; summits decorated; within white, cardinal teeth oblique, rather thick.

SYNONYME.

U. MASONI, Nob. New fresh water shells, p. 34. pl. 5. fig. 2.
Cub. A. N. S. No. 2100.

OBSERVATIONS.

Inhabits Savannah river, at Augusta. When the description was originally published, I had seen only



the young shell, but subsequently, in examining a number of specimens of *U. congaræus* from the same locality, an adult specimen was discovered, which has served for the figure and description. It is in Mr. Phillips's cabinet. The outline of the young shell is represented for comparison with that of *U. congaræus*. Mr. Poulson's cabinet.

It is dedicated to Mr. William Mason, whose discoveries have much advanced our knowledge of American conchology.

—

UNIO COCCINEUS.

PLATE XIII.—FIG. 1.

DESCRIPTION.

* Shell oblique, subtriangular, compressed, slightly waved; epidermis blackish-brown, with crowded wrinkles; anterior side very short; posterior side subcuneiform, much compressed, extremity truncated; umbo slightly flattened; basal margin not much articulated posteriorly; posterior margin slightly sinuous, oblique, rounded above; umbonal slope abruptly rounded; summits prominent, eroded; within salmon colour, rarely white; cardinal teeth double in each valve, direct.

SYNONYME.

U. coccineus, *Hildreth.*
Cab. A. N. S. No. 2104.

OBSERVATIONS.

This shell, in having a slightly undulated disk, approaches the *mytiloides*, Raf., but is very distinct. It is well known in the collections by the name we have adopted, but we are informed that Dr. Hildreth has not published his description of it. I have figured a fine specimen from Mr. Hyde's cabinet. This naturalist observes that the species inhabits Mahoning river, near Pittsburg, and that of the very many specimens he has received, none has perfect beaks.

UNIO CATILLUS.

PLATE XIII.—FIG. 2.

DESCRIPTION

Shell oval orbicular, slightly oblique, moderately thick, convex, dark chestnut-brown, with crowded wrinkles; anterior margin obtusely rounded or subtruncated; posterior margin rectilinear, nearly direct, extremity rounded; umbonal slope rounded; umbones inflated, narrow, prominent; ligament margin rectilinear, oblique, angular posteriorly; summits slightly flattened; beaks much incurved, pointed, slightly tuberculated; lunulo short ovate; within rosaceous; cardinal teeth thick, direct, profoundly sulcated; lateral tooth of the left valve very thick, that of the right valve compressed, and rising from a very broad plate or base projecting on either side; cardinal plate profoundly dilated.

OBSERVATIONS.

This species has been sent from the west, under the name of *coccineus*, but is so very distinct that I should not otherwise have compared it with that species. It approaches nearest to the *politus* of Say, and *obliquus*, Lam., but the peculiarity of the teeth and greatly dilated cardinal plate, as well as many other characters, forbid a union with either. Mr. Hyde informs me that a great number of specimens in his possession, from the Scioto river, shew the interior to be generally of a rose colour or purple, occasionally nearly white, and rarely salmon. Of the latter Mr. Hyde possesses a specimen more beautifully coloured than any *Unio* I have seen—it will be figured in a future number. The figure is from a specimen in the cabinet of Mr. Phillips.

UNIO PRODUCTUS.

PLATE XIV.—FIG. 1.

DESCRIPTION.

Shell narrow-elliptical, produced, moderately thick, slightly ventricose, somewhat contracted near the middle; anterior side short, dilated, margin obtusely rounded; basal margin sinuous; posterior side ros- trated; extremity rounded, much above the line of the base; ligament margin parallel with the line of the base; umbonal slope obtusely carinated; umbo decorticated, not elevated above the dorsal line; within

purplish; cardinal teeth thick, direct; lateral teeth thick.

OBSERVATIONS

On a passing glance this shell would certainly be mistaken for *U. nasutus*, but the thickness of the shell, the dilated anterior side, and thick, direct, lateral teeth, will sufficiently distinguish it. The disk posteriorly has several small plicæ or undulations similar to those of *U. grayanus*, Lea, but as only one specimen can be examined this character may prove inconstant.

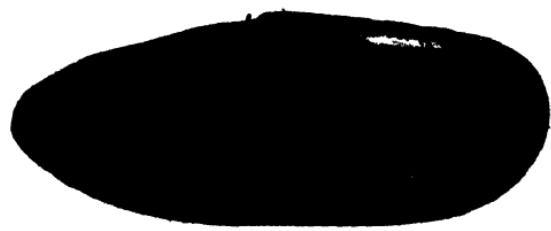
In the cabinet of Mr. Phillips. I found it on the shore of Savannah river, at Augusta, and supposed it to be a variety of *nasutus*, but comparing it with that species from South Carolina and Florida, it was found to differ materially, and to form a link between it and the *rectus*.

UNIO LANCEOLATUS.

PLATE XIV.—FIG. 2.

DESCRIPTION.

Shell narrow-elliptical, thin, ventricose, yellowish, smooth and polished; disks slightly flattened; anterior side somewhat compressed, not very short, margin regularly rounded; umbonal slope regularly rounded, inflated; posterior side produced, extremity



1



2

Lunja productus, c. 2-3. *Lunacolatus*; Lec. Jan 1836.



angulated; beaks not prominent; ligament margin short, elevated; within pale salmon colour; lateral teeth slightly recurved.

SYNONYME

U. LANCEOLATUS, *Lea.* Trans. Amer. Philos. Soc., new series, vol. iii. pl. 3. fig. 2.

Cab. A. N. S. No. 1105.

OBSERVATIONS

Inhabits Tar river, N. C., Mr. Lea. Mr. Hyde has received specimens from the Rappahannoc at Fredericksburg, Va. It approaches nearest in outline to *U. productus* and *nasutus*, but cannot be easily confounded with either.

UNIO RECTUS.

PLATE XV.

DESCRIPTION.

Shell profoundly elongated, thick; anterior side short; posterior side rostrated, cuneiform; extremity angular, compressed; umbo inflated, but not prominent, obtusely rounded; disks slightly contracted in the middle; ligament margin nearly rectilinear; epidermis dark green or olive-brown, smooth, frequently with broad green rays; within pink in the middle; cardinal teeth small, direct, double in each valve.

SYNONYMES.

U. RECTUS, *Lam.* An. sans vert. vol. vi. p. 74.

U. LATISSIMA, *Raf.* An. gen. des Sc. Phys. vol. 5. p. 31. Poulson's trans. p. 25.

U. PRÆLONGUS, *Barnes.* Silliman's Jour. vol. vi. p. 261.
Cab. A. N. S. No. 1112.

OBSERVATIONS.

This shell resembles in outline *U. nasutus*, Say, *U. lanceolatus*, Lea, and *U. teres*, Raf. With the latter it has most affinity. It is a common western species, found as far north as the Ouisconsin, and inhabits the Alabama river near Claiborne. The figure was taken from a fine male specimen in Mr. Poulson's cabinet.

UNIO CRASSUS.

PLATE XVI.

DESCRIPTION.

Male. Shell ovate, thick, yellowish, with brown rays, obsolete inferiorly; umbo broad, flattened; beaks obtuse, nearly terminal; umbonal slope angulated; posterior side cuneiform; posterior dorsal margin arcuate; basal margin dilated behind the middle; posterior extremity angular; within salmon colour or white, with a horn-coloured margin; cardinal teeth direct, thick, very prominent, subtrifid.

Female. Shell oval quadrate, ventricose, posterior side dilated; posterior margin widely truncated, direct; umbo oblique and terminal.



SYNONYMES.

U. *CRASSUS*, *Say*. Nich. Enc. (Amer. ed.) art. Conch. pl. i. fig. 8. *old male*.
 U. *CRASSIDENS*, var. c. *Lam.* An. sans vert. vol. vi. p. 71.
 U. *LIGAMENTINA*, ib. p. 72.
 U. *ELLIPTICUS*, *Barnes*. Silliman's Jour. vol. vi. p. 259. *male*.
 U. *SUBORBICULATUS*, *Hildreth*. Silliman's Jour. vol. xiv. *female*.
 U. *ABRUPTUS*, *Say*. Amer. Conch. pl. 17, *female*, var. A. *male*.
 U. *CYCLOPS*, *Raf.* Contin. of Monog. p. 2, *female*.
Cab. A. N. S. No. 358.

OBSERVATIONS.

Closely related to *U. fasciatus*, *Raf.*, but can be distinguished from that species by fewer and narrower rays, generally distinct only over the umbones; by a lighter coloured more polished epidermis; more prominent teeth, and the prevalence of a salmon coloured interior. Common in the rivers of Ohio, Indiana, and Illinois, but appears to be rare in the more southern states. I could not find it in the rivers of Alabama. The specimen figured was presented by Dr. Blanding.

—

UNIO VIRIDIS.

PLATE XVII.—FIG. 1.

DESCRIPTION.

Shell elliptical or subovate, ventricose, thin; disks slightly flattened anteriorly, much inflated over the umbonal slope; lines of growth prominent; ligament margin elevated; posterior slope dilated; posterior

extremity truncated, direct; epidermis with green rays, obsolete anteriorly, distinct and very unequal posteriorly; umbo slightly prominent; beaks with angular furrows, pointed; within white, iridescent; cardinal teeth compressed, oblique, that of the left valve double or trifid; lateral teeth of the left valve imperfectly divided.

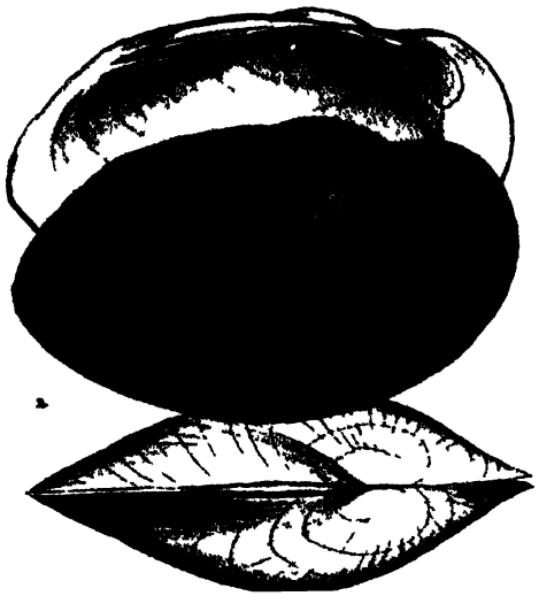
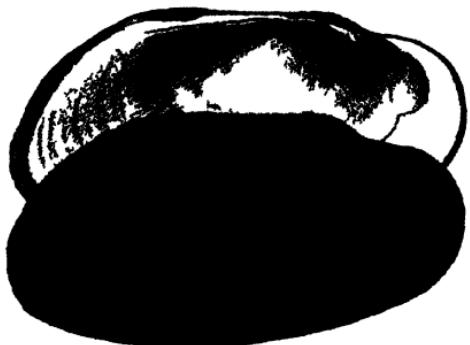
SYNONYME.

U. VIRIDIS, *Raf.* An. gen. des Sc. Phys. vol. v. p. 27. Poulson's trans. p. 19.

Cab. A. N. S. No. 2105.

OBSERVATIONS.

The first specimen of this species which came under my observation, was found in the Schuylkill river, near Philadelphia, by Mr. Hyde, who kindly offered me the use of it, as I supposed it to be undescribed. Comparing it, however, with a single valve from the Kentucky river, in Mr. Poulson's cabinet, it proved to be of the same species with that specimen which was labelled *viridis* by Rafinesque. Mr. Hyde has received specimens from a small stream near Lancaster, and from the Juniata river. One from the latter locality has been selected for the figure and description. It is allied to *U. heterodon*, but cannot be confounded with that species.



1 *Cnivus viridis*, Raf. 2 *Cnivus ochraceus* Say

UNIO OCHRACEUS.

PLATE XVII.—FIG. 2.

DESCRIPTION.

Shell elliptical, inflated, thin; epidermis smooth and polished, rugose posteriorly, yellowish, with narrow green unequal rays; anterior side narrowed, and the superior margin elevated and connate; ligament margin not oblique; umbo inflated; posterior extremity angular; umbonal slope angular; basal margin profoundly arcuate; within white, rarely pale rose or salmon; cardinal teeth very oblique, much compressed, bifid in the right valve; single or imperfectly divided in the left; lateral teeth arcuate.

Var. A. Reddish brown; rays obsolete or wanting; within rosaceous.

SYNONYMES.

U. OCHRACEUS, *Say*. *Nich. Enc. (Amer. ed.)* art. *Conch. pl. ii.* fig. 8.

~~SYNONYMA~~ **OCHRACEA**, *Lea*. *Trans. Amer. Philos. Soc., new series*, vol. iii. p. 69.

~~Var. A.~~ **MYTILUS FLUVIATILIS**, *Gmel.* *Lister, tab. 157. fig. 12.* *ab. A. N. S. No. 1063.*

OBSERVATIONS

Very common in the Schuylkill and Delaware rivers, and inhabits most tide waters north of Savannah river. Variety A. is very abundant in James river, Virginia, where I found vast numbers of shells brought ashore by seines used in the shad fishery in

the month of March. So accurately does the above mentioned variety agree with Lister's figure and description, that I cannot doubt the identity. The species is, perhaps, most closely allied to *U. cariosus*, its common associate in the Delaware and Schuylkill. The specimen figured has a double cardinal tooth in each valve.

UNIO NASUTUS.

PLATE XVIII.—FIG. 1.

DESCRIPTION.

Shell elongated, compressed, thin; disks slightly flattened; anterior side short; posterior side rostrated, tapering, angular at the extremity; umbo not prominent; beaks small, eroded; umbonal slope profoundly oblique, angulated; ligament margin rectilinear, elevated; posterior superior margin profoundly oblique and slightly concave; within bluish, iridescent, rarely purple or salmon; cardinal teeth compressed and oblique, double in each valve.

SYNONYMES.

U. NASUTUS, *Say*. *Nich. Enc.* (Amer. ed.) art. *Conch.* pl. iv. fig. 1.

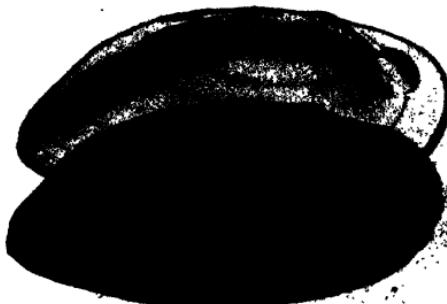
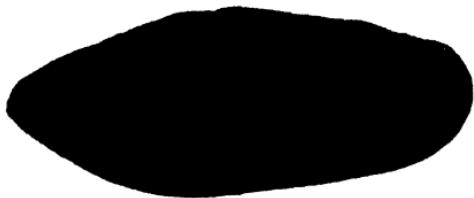
U. ROSTRATA, *Valenc.*

Lister, *tab. 151*, *fig. 6*.

Cab. A. N. S. *No. 1123*.

OBSERVATIONS.

A common species in the tide waters from Florida



to the eastern states. I found it in great abundance in the Potomac river, near Washington, where the specimens are exceedingly elongated. The smaller specimen figured is a female variety from James river, Virginia, where they are generally ornamented with rays; the other figure represents a rare purple variety from Chester river, Maryland: it is in the cabinet of Mr. Phillips. In old shells the teeth are often thick and direct.

UNIO ICTERINUS.

PLATE XVIII.—FIG. 2.

DESCRIPTION.

Shell elliptical, moderately thick; anterior margin regularly rounded; posterior margin descending obliquely, and subtruncated at the extremity; umbo not prominent; summit decorticated; umbonal slope very oblique, angulated; epidermis smooth and polished, olive yellow; within salmon coloured; cardinal tooth in the left valve trifid, in the right, single.

SYNONYME.

U. ICTERINUS, *Nab.* New fresh water shells, p. 41. pl. vi. fig. 5.
Cab. A. N. S. No. 2106.

OBSERVATIONS.

I found the species in the Savannah river, at Augusta. It resembles *U. lanceolatus* in epidermis and colour. Its proper place, we think, is between *nasutus* and *declivis*, Say.

UNIO CARIOSUS.

PLATE XIX.

DESCRIPTION.

Shell subovate, ventricose, thick anteriorly; epidermis yellowish or straw coloured, very smooth and polished, with a few narrow dark green rays posteriorly, more numerous on the posterior slope; umbo prominent, decorticated; umbonal slope angulated; ligament margin elevated; ligament prominent; basal margin swelling posteriorly; within white; cardinal teeth double in each valve, prominent, oblique.

SYNONYMES.

U. CARIOSUS, *Say*. Nich. Enc. (Amer. ed.) art. Conch. pl. iii. fig. 2. *female*.

U. LUREOLA, *Lam.* An. sans vest. vol. vi. p. 79.

U. OVATUS, *Valenc.*

Cab. A. N. S. No. 1022.

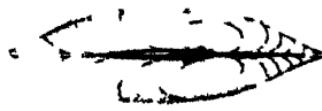
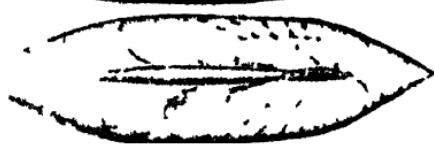
OBSERVATIONS.

This is one of the most abundant species in the tide waters of the middle states, but I found it comparatively rare in the Potomac and James rivers. In varieties of form it much resembles *U. crassus*, and both male and female are represented, in order to convey a clear idea of sexual differences, which are so striking in a large proportion of the species. It is very often destitute of rays, and I have seen only one specimen in which the rays extended over the disk to the anterior margin.





Unio mytiloides Rafinesque.



UNIO COLLINUS.

PLATE XXXVI.—FIG. 2.

DESCRIPTION.

Shell elliptical, rather thin, with coarse concentric lines; umbonial slope rounded; posterior side slightly produced, and rapidly narrowed to the extremity, which is rounded; basal margin straight near the middle; beaks small, slightly prominent, approximate, undulated; umbones with two or three small tubercles posterior to the middle; epidermis yellowish-brown, obscurely rayed; within white or pale rose colour; cardinal teeth oblique, robust.

Cab. A. N. S. No. 20408.

OBSERVATIONS.

This species may readily be known by the small tubercles on the umbones. The female, when young, closely resembles *U. heterodon* in outline, but the usual formation of the lateral teeth and the tubercles eminently distinguish it. Inhabits North river, a branch of James river, Virginia, where it was found by Mr. Constant Newkirk, of Washington College, from whom I received three specimens.

UNIO SOWERBIANUS.

PLATE XXXVII.—FIG. 1.

DESCRIPTION.

Shell ovate, convex, with concentric furrows; disks slightly gibbose in the middle; posterior side with a furrow from beak to base; a slight groove on the posterior submargin; raised radiating lines extend from the angle of the larger furrow to the posterior extremity, which is direct and slightly retuse; basal margin retuse posteriorly; epidermis glabrous, with faint filiform brown rays; within purple or rose colour; cardinal teeth very large and prominent, double in each valve.

SYNONYME.

U. SOWERBIANUS, *Lea*. Trans. Amer. Phil. Soc., new series, vol. v. p. 68, pl. x. fig. 28.

OBSERVATIONS.

The fine specimen of this beautiful and very distinct species which I have figured, was kindly loaned for the purpose by Mr. Featherstonhaugh, who procured it from Cumberland river, Tennessee. I found one in the summer of 1833 on the bank of Elk river, Alabama, and judging from Mr. Lea's figure of the *pileus*, I supposed it to be that species.* The specimen is in the cabinet of Mr. Poulson.

The *Sowerbianus* is remarkable for its highly polished epidermis and raised lines on the posterior side.

* *New Fresh Water Shells*, p. 69, note.



UNIO POLITUS.

PLATE XXXVII.—FIG. 2.

DESCRIPTION.

Shell suborbicular, convex, with slight concentric furrows; anterior margin obtusely rounded; posterior margin nearly direct; ligament margin rectilinear, slightly declining; umbonal slope rounded; disks flattened or very indistinctly furrowed posteriorly; basal margin rounded, or slightly gibbous in the middle; epidermis glossy, with fine concentric wrinkles; umbo prominent, smooth and polished, with dark green interrupted rays; within white; cardinal teeth thick, very direct.

SYNONYMES.

U. POLITUS, *Say*. Amer. Conch., No. 6.

U. SUBROTUNDUS, *Lea*. Trans. Amer. Phil. Soc., new series, vol. iv. p. 117, pl. xviii. fig. 45.

Cub. A. N. S. No. 20409.

OBSERVATIONS.

Related to *U. Kirtlandicus*, *Lea*, from which it differs in being proportionally more elevated and much less compressed. It is also a smaller species. The name of *subrotundus* has necessarily been abandoned, as it is preoccupied for a different species.

UNIO NEXUS.

PLATE XXXVIII.—FIG. 1.

DESCRIPTION.

Shell triangular, sub-rhomboidal, much inflated, thick; umbo prominent; posterior slope much depressed, with a broad, shallow groove, which extends from the beak to the posterior margin; posterior margin forming nearly a right angle with the base, obtusely emarginate in the middle by the termination of the groove; umbonal slope carinated, in consequence of the depression of the posterior side; lunule very short; epidermis yellowish-brown, obsoletely radiated; within white; cardinal teeth direct; lateral teeth short, with but little obliquity.

SYNONYMES.

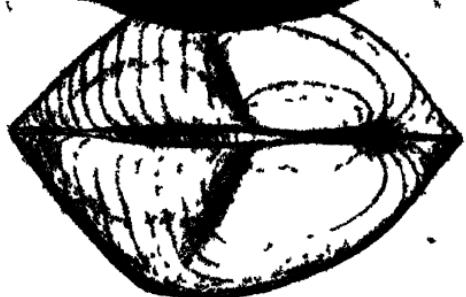
U. Nexus, *Say*. Trans. Journ., vol. iv. p. 527, 1831. Amer. Couch., pl. li.

U. ARCAFORMIS, *Lea*. Trans. Amer. Phil. Soc., new series, vol. iv. p. 116, pl. xvii. fig. 44.

Cab. A. N. S. No. 20410.

OBSERVATIONS.

Mr. Say remarks that this species is "related to *triguer*, Raf., but differs in the greater prominence of the superior portion of the anterior [posterior] margin." There is also a great difference in the teeth and in the markings of the epidermis, which in the *nexus* are filiform rays, but in the *triguer* generally sagittate spots. Not uncommon in the Cumber-



1. *Oncoconcha* 2. *Oncoconcha*

land river, and it seems chiefly confined to the waters of Tennessee—I saw none in Alabama. The figure is from a specimen in the cabinet of Mr. Featherstonhaugh.

UNIO GREENII.

PLATE XXXVIII.—FIG. 2.

DESCRIPTION.

Shell sub-triangular; disks slightly flattened; anterior side not very short, margin rounded, not very obtuse; umbo flattened, not elevated; beaks eroded; umbonal slope straight, subangulated; ligament short, ligament margin forming with the posterior margin a nearly regular arcuate line; extremity obtusely rounded or subtruncated; basal margin slightly arcuate; epidermis wrinkled on the margins, with narrow green rays on the posterior slope and interrupted rays on the umbo; within white; cardinal teeth slightly oblique; lateral teeth oblique and very slightly curved.

SYNONYME.

U. GREENII, Nob. *New Fresh Water Shells*, p. 32, pl. iv. fig. 1.
Cub. A. N. S. No. 20413.

OBSERVATIONS.

Dedicated to my friend Jacob Green, M. D., Professor of Chemistry in Jefferson College, a gentleman well known as a contributor to Conchology. Inhabits the head waters of Black Warrior river, Alabama; not uncommon.

UNIO SHEPARDIANUS.

PLATE XXXIX.

DESCRIPTION.

Shell profoundly elongated, sinuous, compressed, tapering to the posterior extremity, which is truncated; valves rather thin, with concentric lines, profound over the umbonal slope, which is slightly elevated; a carinated line passes between the umbonal slope and posterior dorsal margin; beaks very small, hardly raised above the dorsal line; within purple; lateral teeth long and rectilinear, somewhat dilated or thickened near the anterior termination.

SYNONYME.

U. SHEPARDIANUS, *Lea*. 'Trans. Amer. Phil. Soc., new series, vol.

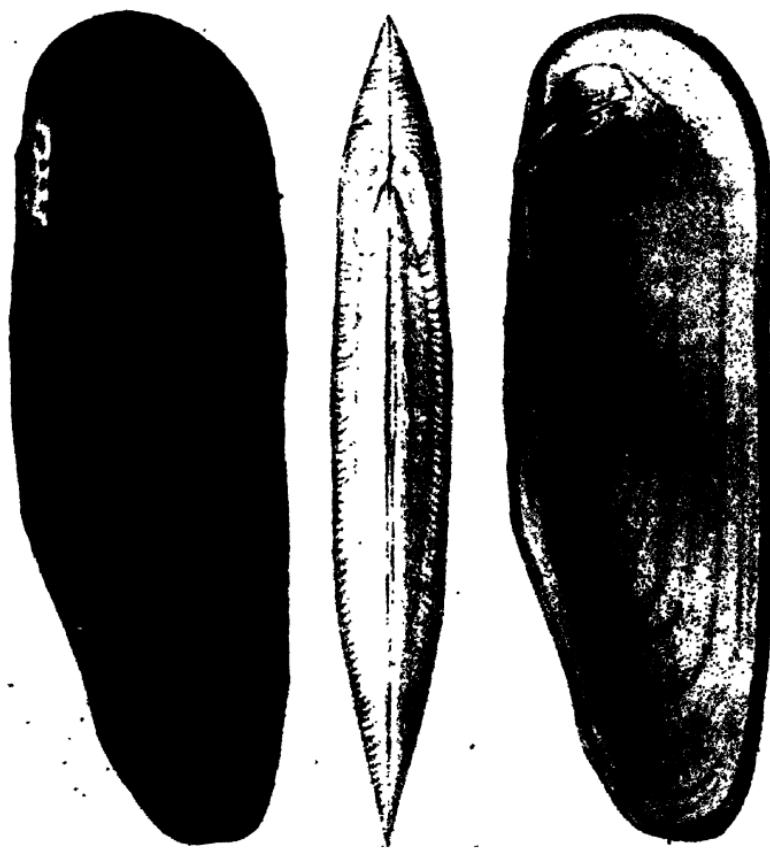
v. p. 95, pl. xiii. fig. 38.

Cab. A. N. S. No. 20411.

OBSERVATIONS.

This is perhaps the most elongated, proportionally, of any known *Unio*, except the *Grayanus*, and differs chiefly in this respect from *U. angustatus*, which is the species most nearly related to it.

Inhabits Alatamaha river, near Hopeton and Darien, Georgia.



Limnephilus medius L.

UNIO COMPRESSUS.

PLATE XL.—FIG. 1.

DESCRIPTION.

Shell oblong or elliptical; disks flattened; anterior margin regularly rounded; umbonial slope slightly elevated, rounded; beaks undulated, not prominent, distant from the anterior extremity; ligament margin elevated, connate; posterior margin oblique, rectilinear, extremity truncated and slightly projecting beyond the line of the base; epidermis ochraceous, with numerous unequal green rays, some of which are very broad; within white, tinged with pale salmon under the beaks; cardinal tooth scarcely double in the right valve, very oblique, elongated, rather thick; in the left valve widely trifid, compressed, posterior lobe rather behind the apex.

SYNONYMES.

U. COMPRESSUS, *Deshayes*.

SYMPHYNOTA COMPRESSA, *Lea*. *Trans. Amer. Phil. Soc.*, (new series,) vol. iii. p. 450, pl. xii. fig. 22.

Cab. A. N. S. No. 1098.

OBSERVATIONS.

This species can at once be distinguished from all others by the peculiarity of its hinge. It inhabits the Ohio, Scioto, and Wabash rivers; also Oak-Orchard creek, in the State of New York, and Norman's Kill, near Albany. The figure is from a specimen which I found in a mill pond at the village of Adams,

Jefferson county, New York, where the species is extremely abundant.

UNIO CAPSÆFORMIS.

PLATE XI.—FIG. 2.

DESCRIPTION.

Shell sub-oval, slightly ventricose, moderately thick; posterior side flattened or very slightly grooved; umbonial slope obtusely angulated; basal margin rounded medially, straight or slightly emarginate posteriorly; posterior extremity direct, truncated, narrowed, slightly produced; summits obtusely rounded, not prominent; epidermis yellowish, with numerous narrow unequal green rays; within white; cardinal teeth very erect and prominent.

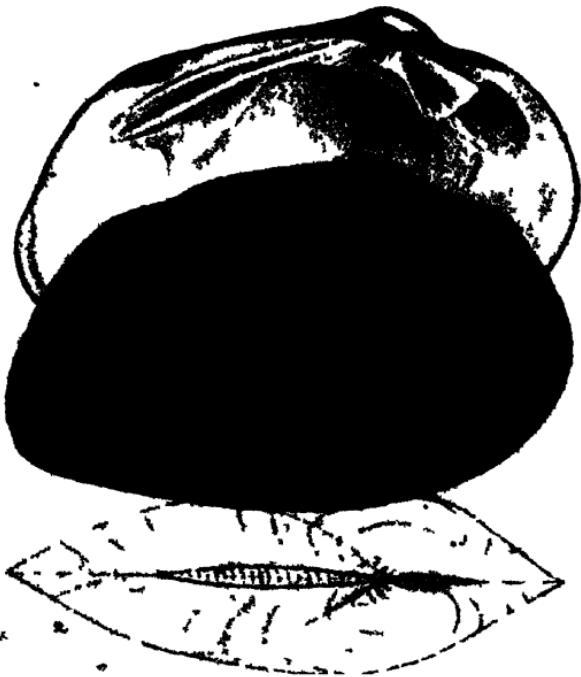
SYNONYME.

U. CAPSÆFORMIS, *Lea.* *Trans. Amer. Philos. Soc., new series*,
vol. iv. p. 143, pl. ii. fig. 4.
Cub. A. N. S. No. 20414.

OBSERVATIONS.

Inhabits Cumberland river near Nashville, Tennessee. I have found it in the Tennessee river at Florence, Alabama. It bears a slight resemblance to the young of *U. flexuosus*, and is a very distinct species. The female is represented in figure 3. Between the sexes the difference in outline is greater than in any species with which we are acquainted, except *U. gibbosus*, Raf.





The two fine specimens figured belong to the splendid collection of Mr. Poulson. They were sent from Nashville, Tennessee.

UNIO SUBPLANUS.

PLATE XLI.—FIG. 1.

DESCRIPTION.

Shell sub-oval; disks flattened; anterior margin regularly rounded, obliquely descending; umboinal slope rounded; posterior slope dilated; beaks not prominent, distant from the anterior extremity; ligament margin elevated, slightly oblique; posterior extremity truncated; epidermis yellowish-brown, with numerous fine concentric wrinkled lines; within pale rose colour; cardinal teeth oblique; lateral teeth rectilinear.

Cab. A. N. S. No. 20412.

OBSERVATIONS.

I have recently received several specimens of this shell from Lexington, Rockbridge county, Virginia, where they were found by Mr. Newkirk in a branch of the James river. Approaches *U. Masoni*, but is more compressed and elongated, and cannot be confounded with it.

UNIO FLAVUS.

PLATE XLI.—FIG. 2.

DESCRIPTION

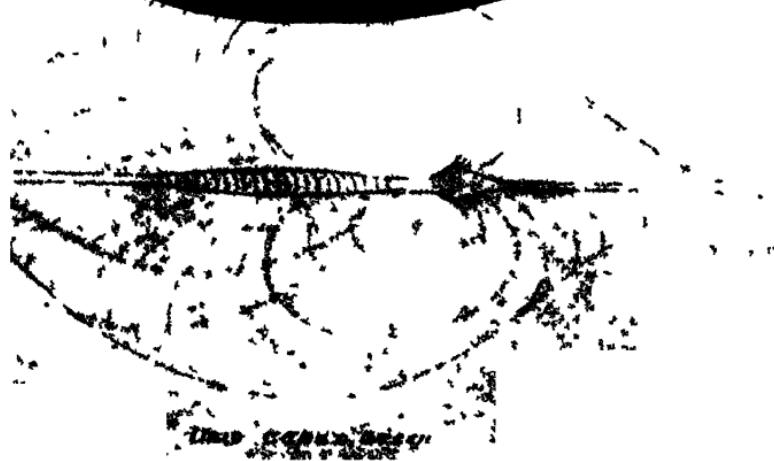
Shell sub-triangular, moderately thick; disks flattened on the posterior side; anterior margin obtusely rounded; ligament margin oblique, rectilinear; posterior margin wide, straight, nearly direct; extremity obtuse; basal margin straight from the posterior extremity to beyond the middle; umbonal slope carinated; umbo rather prominent; beaks flattened, with a few obtuse oblique undulations; within salmon colour; cardinal and lateral teeth large and very prominent.

SYNONYMES

U. FLAVA, *Rf.* Ann. gen. des Sc., vol. v. p. 59. Pousson's trans., p. 38.
U. RUBIGINOSUS, *Lea.* Trans. Amer. Phil. Soc., new series, vol. m. p. 41, pl. viii. fig. 10.
Cub. A. A. S. No. 1126.

OBSERVATIONS.

This shell is so distinctly described and even figured by Rafinesque, that no honest inquirer can refuse him credit for the species. He remarks that he found "it only in the small rivers falling into the Kentucky, Salt or Green rivers." This peculiarity of habitat is remarkable, and I was unable to find a specimen in either the Alabama, Tombeckbe, or Black Warrior rivers, although several were found in a small mill stream in Greene county, Alabama. Rafinesque re-



marks that the "young shells are almost yellow, and the animal of a deep or orange-yellow colour," which accords with my own observation. I do not, however, consider the colour of the animal any safe guide in specific distinction, as I have found the same species, particularly *U. decisus*, to contain in some specimens an orange coloured, and in others a perfectly white animal.

UNIO CAPAX.

PLATE XLII.

DESCRIPTION.

Shell very globose; valves rather thin, translucent, connate; umbones tumid, summit obtusely rounded, prominent, distant from the anterior margin; epidermis straw colour, polished, with two faint green rays on the posterior slope; within white and iridescent; cardinal teeth lamellar, prominent, double in the right valve, crenate and single in the left; lateral teeth arcuate.

SYNONYMES.

U. CAPAX, *Green*. *Cab. of Nat. Hist.*, vol. ii. p. 290. 1832.
SYMPHYNOTA GLOBOSEA, *Lea*. *Trans. Amer. Phil. Soc.*, new series
 vol. iv. p. 153, pl. iv. fig. 12. 1834.
Cab. A. N. S. No. 1227.

OBSERVATIONS.

The most evanescent of all the Unios known, and with young one of the most delicate and beautiful

It most nearly resembles *U. cardium*, Raf., but the tumid umbones will always prove a destructive character. Dr. Green was the first to recognise this as an undescribed species, and his name, having priority, must necessarily be adopted. He observes, "I now describe a fine large shell, which seems to have escaped the notice of our conchologists. The first specimens of this shell which I observed were from the Falls of St. Anthony. I afterwards received it from the Bayou Teche, but I never discovered or ascertained that it exists in the Ohio." Mr. Lea, on the authority of Col. Long, informs us that it inhabits the Ohio, 150 miles below Louisville, Ky.

UNIO RUDIS.

PLATE XLIII.—FIG. 1

DESCRIPTION

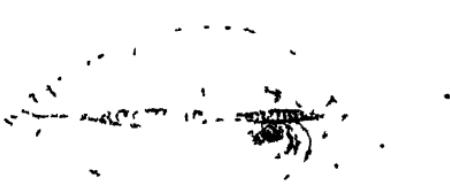
Shell ovate-acute, thick anteriorly; diameter greatest at the umbones; beaks eroded; posterior side cuneiform; ligament and posterior margins arcuate, extremity subangulated; epidermis brown, wrinkled inferiorly; within white; cardinal teeth small, direct; lateral teeth slightly arcuate.

SYNONYME

U. RAVENELIANUS, Lea. *Trans. Amer. Phil. Soc., new series*, vol. iv. p. 144, pl. iii. fig. 5.
Cub. A. N. S. No. 20415.

OBSERVATIONS

Inhabits French Broad river, North Carolina. Dr.



Ravenel. I found it in the upper part of the Black Warrior river, Alabama, where it is rare.

Resembles *U. perovatus* in outline, but the shell is far greater in diameter through the umbones, and the beaks nearer the anterior extremity. The most striking character, perhaps, is the accurate wedge-shaped form of the posterior side. Mr. Lea first published this species under the name of *Ravenelianus*, but as I had previously published a different species with the same name, I am compelled to substitute another.

UNIO OBLIQUUS.

PLATE XLIII.—FIG. 2.

DESCRIPTION.

Shell ovate-rotundate, oblique; disks with a slight narrow furrow on the posterior side; umbonal slope carinated; posterior slope with an obtuse carinated line; ligament and posterior margins arcuate; posterior extremity obliquely truncated; beaks very prominent, curving forward; lunule sagittate; within white; cardinal teeth directed obliquely backwards; lateral teeth arcuate; cardinal plate much thickened under the cardinal teeth, contracting the cavity of the umbo.

SYNONYMES.

U. obliqua, Lam. An. sans Vert., vol. vi. p. 72. Ferus. Mag. de Zool.

U. exesus, Lea. Trans. Amer. Phil. Soc., new series, vol. fifth, p. 94, pl. ix. fig. 14.

Cab. A. N. S. No. 1259.

OBSERVATIONS

Inhabits the Black Warrior and Alabama rivers, where I found it in abundance; also the Ohio and its tributaries.

The ovate form of this species and its obliquity will distinguish it at a glance from *undatus*, Barnes. The young is remarkable for being of yellow colour behind the umbonal slope, which soon disappears in general as the shell increases in size.

Mr. Lea appears to be ignorant of the true distinctive character of this species, since he affirms that I have published it under the name of *mytiloides*; the latter is destitute of the callosity of the cardinal plate which characterizes the *obliquus*, has a very different lunule, and is dissimilar in outline to that species. Those who are conversant with the two shells will not confound them.

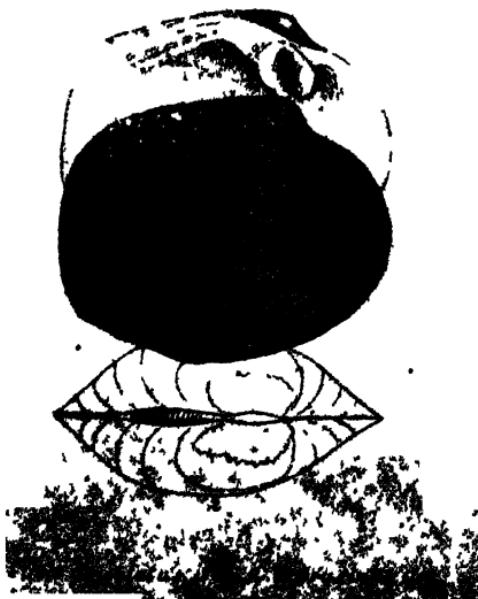
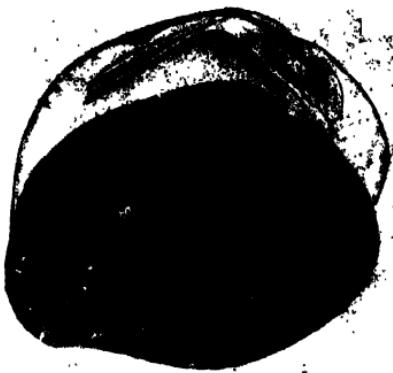
Mr. Lea considers the *obliqua* of Lamarck to be identical with *undatus* of Barnes, but Lamarck's description is wholly inapplicable to the latter, whilst it agrees with the *obesus* of Lea, with which it is identical, according to Ferussac.

—
UNIO APICULATUS.

PLATE XLIV.—FIG. 1.

DESCRIPTION.

Shell subquadrate, compressed; summits not very prominent; hinge margin concave; disks with a dilatation; cardinal angle compressed; narrow; umbonal slope



arcuate, carinated; posterior margin dilated, direct, produced, and rounded or subtruncated at base; disks covered with small subequal tubercles, arranged more or less in symmetrical lines; within white.

SYNONYMES.

U. APICULATUS, Say. Disseminator, 1829. American Conch. pl. 52.

U. ASPLR, Lea. Trans. Amer. Phil. Soc., new series, vol. iii. p. 95, pl. ix. fig. 15, 1832.

Cub. A. N. S. No. 1877.

OBSERVATIONS

Inhabits the Alabama river, near Claiborne, where I found specimens, but they were not numerous nor comparable in beauty to those which inhabit Bayou Teche in Louisiana.

Mr. Say thinks this may prove to be a variety of *U. quadrulus*, but although it is nearly related to that species we believe it to be very distinct. Old shells become proportionally more elongated and produced at the posterior extremity of the basal margin, and the tubercles nearly disappear on the inferior half of the disks. The figure is from a specimen from Bayou Teche.

UNIO PRASINUS.

PLATE XLIV.—FIG. 2.

DESCRIPTION.

Shell suborbicular, compressed, with distant concentric impressed lines; anterior margin obtusely

rounded; posterior margin wide, direct; basal margin straight, parallel with the ligament margin; summits rather prominent; disks smooth, with a few very small tubercles on the posterior side; epidermis olive-yellow, very broadly rayed with green; within white.

SYNONYMES.

U. PRASINUS, *Nob.* *New Fresh Water Shells*, p. 44. May, 1834.
U. SCHOOLCRAFTENSIS, *Lea.* *Trans. Amer. Phil. Soc.*, new series,
 vol. iv. p. 149, pl. iii. fig. 9. Sept. 1834.
Cub. A. N. S. No. 1128.

OBSERVATIONS.

Inhabits the Scioto river, Indiana.

The specimen of this shell in the cabinet of the Academy of Natural Sciences was brought by Mr. Schoolcraft from Fox river, of Green Bay—others are in the collection of Mr. Hyde. The species differs from *U. bullatus*, Raf., in being of a suborbicular outline, more compressed, with much less prominent beaks and fewer tubercles. Some specimens have a few rather large tubercles near the base.

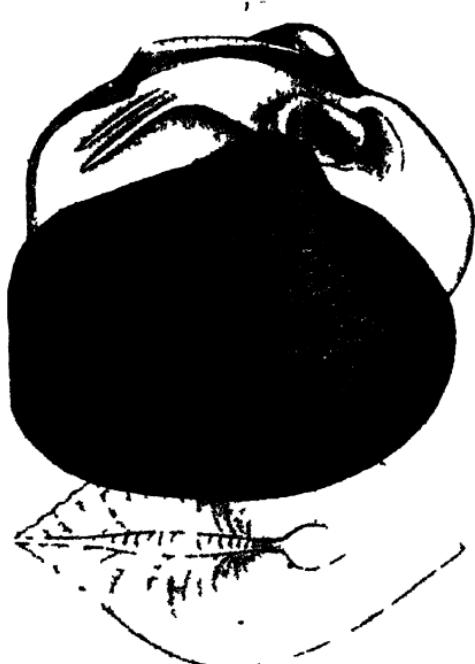
—

UNIO NODULATUS.

PLATE XLV.—FIG. 1.

DESCRIPTION.

Shell suborbicular, slightly ventricose, moderately thick; posterior margin direct, retuse in the middle; ligament margin straight, elevated, scarcely declining; disks with two series of distant prominent tubercles;



Scutigera nodulata, Rac. B. u. bullata, n. sp.

posterior slope dilated, with nodules towards the margin; beaks slightly elevated, granulate at tip; epidermis olive-brown and rather smooth; within white; cardinal teeth large and prominent; lateral teeth subrectilinear.

SYNONYMES

U. NODULATA, *Raf.* Ann. gen. des Sc. Phys., vol. v. p. 41, pl. lxxxi. figs. 17, 18. Poulsen's translation, p. 42. *Say*. Amer. Conch., No. 6. *Ferrus*. Mag. de Zool.

U. PUSTULATUS, *Lea*. Trans. Amer. Phil. Soc., new series, vol. iv. p. 79, pl. vii. fig. 9.

Cab. A. N. S., No. 1755.

OBSERVATIONS

Inhabits the Ohio river and its tributaries. It is related to *U. bullatus* and *U. Mortoni*. From the former it differs in the regularity of its tubercles, in the dilatation of the posterior slope, and in the absence of the broad green ray on the umbo. From the latter it may be distinguished by the same characters, and, in addition, by the want of a broad depression or furrow, which characterizes *U. Mortoni*. Rafinesque's outlines of this shell, though rude, are characteristic enough, and his description, though short, perfectly clear and applicable to this species only.

UNIO BULLATUS.

PLATE XLV.—FIG. 2.

DESCRIPTION

Shell elevated, equilateral, inflated, irregularly tuberculated on the middle and posterior slope; medial tubercles generally large; substance of the shell thick; beaks elevated and granulated at tip; ligament slope descending, short; posterior margin direct, nearly straight; epidermis bright brown, a single broad interrupted green ray passes from the apex to the middle of the disk; within white; lateral teeth very short, straight, thick and oblique.

SYNONYMS

U. burriana, *Raf.* Ann. gen. des Sc. Phys., vol. v. p. 41. Pousson's trans., p. 43.
U. verrucosus virbus, *Hild.* Silliman's Journ., vol. xiv. p. 289.
U. postulosus, *Zea*. Trans. Amer. Phil. Soc., new series, vol. iv. p. 76, pl. vii. fig. 7.
Cub. A. N. S., No. 1175.

OBSERVATIONS.

Inhabits the Ohio and its tributaries, ~~Alabama and Black Warrior rivers~~. This common species is easily recognised, and will be found to differ constantly from *U. prasinus* by its more elevated and ventricose form and more numerous tubercles. It wants the furrow of the *Mortoni*, and is besides distinguished by its green ray and larger tubercles. The white colour of the nacre is remarkably constant,

as I have never found it to vary in a great number of specimens, which is seldom the case in most other species. A variety is remarkably abundant in the Black Warrior river, at Erie, Alabama.

Mr. Say has referred this species to *U. nodulosus*, Wood, but the figure of that shell in Wood's Conchology appears to me to represent a very different species.

— —

UNIO STEGARIUS.

PLATE XLVI.—FIG. 1

DESCRIPTION

Shell elevated, ovate; valves thick, with concentric furrows and ridges; disk with a narrow, not deeply impressed furrow from beak to base; umbo and beaks inclining forward; lunule large, ovate-acute, very distinct; beaks pointed and incurved; umbonal slope carinated over the umbo; epidermis yellowish-brown, with crowded, fine, green dotted rays, and broad rays, composed of large dots; posterior margin direct; ~~within~~ white; cardinal plate greatly dilated; cardinal ~~margin~~ direct, deeply sulcated; muscular impressions small.

SYNONYMES

U. STEGARIA, Raf. Ann. gen. des Sc. Phys., vol. v. p. 46.
 Pouson's translation, p. 51. **“Say, Amer. Conch., No. 6.**
Ferr., Mag. de Zool.

U. IRRORATUS, Lea. Trans. Amer. Phil. Soc., ~~new~~ series, vol. iii. p. 269, pl. v. fig. 5.
Cab. A. N. S., No. 1122.

OBSERVATIONS

Inhabits the Ohio, Scioto, Wabash, and more rarely the rivers of Tennessee. I have not observed it so far south as the Tennessee river, in Alabama. It is a very beautiful species, remarkable for its very numerous dotted rays and its regular and graceful outline, which approaches that of *U. retusus*.

UNIO DROMAS.

PLATE XLVI.—FIG. 2.

DESCRIPTION

Shell obliquely ovate; disks flattened above, and with a very prominent concentric angular ridge in the middle; a slight furrow from beak to base on the posterior side; beaks prominent, summit rather wide, flattened; lunule angular; epidermis yellowish-brown, with very numerous green interrupted capillary rays, and a few broad rays; within white; cavity shallow.

SYNONYME.

U. DROMAS, *Lea*. *Trans. Amer. Phil. Soc.* ~~new series~~
p. 182, pl. x. fig. 29.
Cab. A. N. S., No. 20416.

OBSERVATIONS.

Inhabits Harpeth and Cumberland rivers, Tennessee; Elk river, near the muscle shoals, Alabama. I have not found it further south.

My father, many years since, received this elegant



Stem elegans 2 drams Lec

species from Harpeth river, Tennessee. It cannot be confounded with *U. stegarius*, in consequence of its remarkable gibbose disk. The rays are more strongly marked than those of the latter species; the disk is never tuberculated, whilst the *stegarius* is sometimes covered with tubercles, as Mr. Lea has stated in his remarks upon the *dromas*. A single valve in my cabinet measures about four inches from beak to base.

UNIO SUBTENTUS.

PLATE XLVII.—FIG. 1.

DESCRIPTION

Shell oblong-suboval, very widely and slightly contracted at base; summits hardly elevated, decorticated, obtusely rounded; posterior basal angle a little prominent, rounded; posterior dorsal slope with numerous subramose, slightly arcuate, oblique, parallel costæ; epidermis with broad interrupted green rays, sometimes obsolete; within reddish-fulvous; cavity of umbo not deep; cardinal teeth somewhat direct, transverse; lateral teeth slightly arcuate.

SYNONYME.

U. subtentus, Say, Journal Acad. Nat. Sc., vol. v. p. 130.

Amer. Conch., pl. xv.

Cat. Am. Mus. No. 20417.

OBSErvATION.

Mr. Say observed, "in general outline, this shell

has some resemblance to *U. purpureus*, Nob.; but it is distinguished by many characters, and more obviously by the character of the anterior costated margin. It is a native of South Carolina,* and was sent to me by Professor Vanuxem, who obtained it from the North Fork of the Holston river."

Dr. William Blanding presented me with specimens from Nollichucky river, Tennessee, the largest of which is nearly destitute of the posterior ribs. I found a few dead shells on the bank of Elk river, near the muscle shoals, Alabama.

UNIO ACUTISSIMUS.

PLATE XLVII.—FIG. 2.

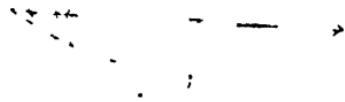
DESCRIPTION.

Shell narrow-elliptical; posterior side produced, gradually narrowed to a point; valves thin; posterior side with parallel furrows extending from the umbonal slope to base; posterior slope with slightly arcuate ribs and furrows; umbonal slope carinated; beaks not elevated above the dorsal line; epidermis yellowish, with green dotted rays; within yellowish, highly polished, exhibiting the ribs of the exterior.

SYNONYME.

U. acutissimus, Lea. Trans. Amer. Phil. Soc., new series, vol. iv. p. 89, pl. x. fig. 18.
Cab. A. N. S., No. 20418.

* Mr. Vanuxem informs me that he found it in Virginia.



schubertii (Say 3, *Glischidium* 3, *Glischidium* 3, *Glischidium* 3, *Glischidium* 3,

OBSERVATIONS

Inhabits the Alabama and Black Warrior rivers: rare.

This is one of the smallest species of *Unio*, and resembles the young of the *conradius*, but is much more elongated. Mr. Lea observes that the lateral teeth are single in each valve; but the specimens before me have the usual form of a divided tooth in the left valve. The epidermis is marked with pale green zig-zag lines, and the furrows on the disk are sometimes obsolete or wanting. I found two fine individuals at the village of Erie, Greene county, Alabama, on a bar in the Black Warrior river.

—
UNIO CONRADIUS.

PLATE XLVII.—FIG. 3.

DESCRIPTION.

Shell elliptical, basal margin straight or slightly emarginate; ligament margin slightly declining; valves rather thin, with undulations on the posterior side, sometimes obsolete; posterior slope with arcuate ribs; beaks very slightly prominent and undulated, decorticated; epidermis finely wrinkled, yellowish-brown, with numerous green rays; within inclining to salmon colour; very iridescent and furrowed posteriorly.

SYNONYME.

U. CONRADIUS, *Lea*. *Trans. Amer. Phil. Soc.*, new series, vol. v.
p. 63, pl. ix. fig. 23.
Cab. A. N. S., No. 20419.

OBSERVATIONS

Inhabits Flint river, Alabama, near its junction with the Tennessee river, and is common in the vicinity of Nashville, Tennessee. This small species is related to *U. subtentus*, but is very obviously distinct. It is proportionally shorter than the *acutissimus*, and has more obvious beaks, but young individuals much resemble the latter species, as may be observed in fig. 4. In some specimens the posterior undulations are large and profound, in others more numerous and not so distinct.

—
UNIO INTERRUPTUS.

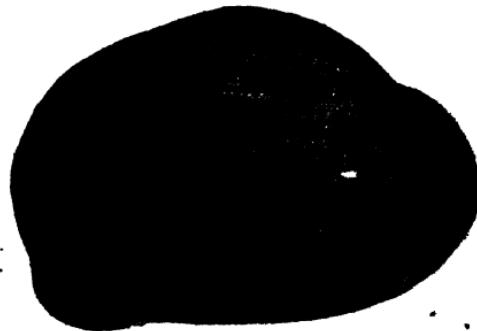
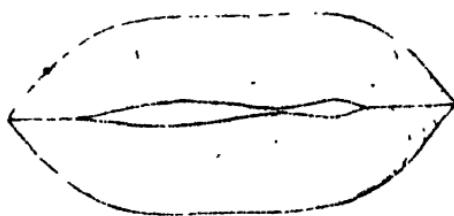
PLATE XLVIII.

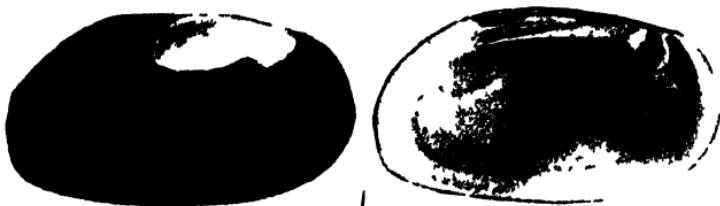
DESCRIPTION

Shell subtriangular, disks flattened; umbones broad, flattened, summits obtusely rounded; posterior slope much depressed; umbonal slope abruptly rounded, nearly terminal; epidermis brownish-yellow, wrinkled, except on the umbo; rays numerous, narrow, interrupted, of a dark olive colour; on the umbonal and posterior slopes consisting of series of small quadrangular spots; within white; cardinal and lateral teeth very robust; anterior and posterior muscular impressions deeply impressed.

SYNONYMES.

U. interrupta, Raf. Ann. gen. des Sc. Phys., vol. v. p. 36.
 " " " Amer. Conch., No. 6. " " " Mag. de Zool.
U. univittata, Linn. Syst. Natur. Phil. Soc., new series, vol.





2



3



OBSERVATIONS

Inhabits Cumberland river near Nashville, Tennessee, and Elk river, near the muscle shoals, Alabama.

In outline it somewhat resembles *Unio lincolatus*, but more nearly approaches the *penitus*. The rays, very wide umbo, and the proportionally shorter outline distinguish it from the latter species. The lower figure represents the female.

UNIO PLEXUS.

PLATE XLIX.—FIGS. 1, 2

DESCRIPTION

Shell suboval, ventricose; posterior margin truncated or obtusely rounded; posterior slope with narrow ribs; umbo flattened, with longitudinal undulations; umbonal slope subangulated; beaks eroded, not prominent; epidermis nearly black, wrinkled; within purple; cardinal teeth direct; anterior muscular impression very rough.

Cab. A. N. S., No. 20421.

OBSERVATIONS

This species was sent from Vera Cruz by the American consul, Dr. Marmaduke Burrough. I am unacquainted with its habitat. The larger specimen, of which an outline is given on the plate, much resembles *U. niger*, but the undulations on the umboes, the proportional length in the smaller speci-

men, and other characters, render it sufficiently distinct. It has, perhaps, more general resemblance to *Unio trapezoides* than to any other species.

UNIO HETERODON.

PLATE XLIX.—FIG. 3.

DESCRIPTION

Shell rhomboidal-ovate, ventricose, valves thin; ligament margin short, elevated, parallel with the basal margin; umbonal slope rounded; beaks decorticating; basal margin straight in the middle; posterior extremity rounded or very obtusely angulated, a little above the line of the base; within bluish; cardinal tooth in the left valve trilobed; in the right valve, single, elongated, oblique, compressed; lateral teeth slightly curved, double in the right valve.

SYNONYME

U. HETERODON, Lea. Trans. Amer. Phil. Soc., new series, vol. iii. p. 428, pl. viii, fig. 11.

Cab. A. N. S., No. 20425.

OBSERVATIONS.

Inhabits the Schuylkill and other rivers in Pennsylvania. This interesting little species was first named by Messrs. Mason and Hyde, and my father suggested the name of *heterodon*, which Mr. Lea has adopted. It is related to *U. viridis* and *compressus*, but the double cardinal teeth being in the right valve will distinguish it from every other species.

UNIO LIENOSUS.

VARIETY CONSTRICTUS

PLATE XLIX.—FIG. 4.

DESCRIPTION

Shell elliptical, ventricose; beaks rather prominent, undulated, distant from the anterior margin; posterior side furrowed, contracted at base; posterior angle much above the line of the base; epidermis obscurely rayed; within white; cardinal teeth robust.

CAB. CL. A. S., NO. 20125

OBSERVATIONS

Inhabits North river, Rockbridge county, Virginia. Several specimens of this variety exhibit the peculiar groove on the posterior side, which has suggested the name. In other respects it agrees with *U. lencosus* of the south-western streams, except that the cardinal teeth are more robust.

302

UNIO STRAMINEUS.

PLATE L.—FIG. 1.

DESCRIPTION

Shell ovate, ventricose; disk with coarse prominent lines of growth; umbo with numerous undulated plies; umbonal slope undefined; ligament margin elevated;

anterior side slightly contracted or furrowed from beak to base; basal margin slightly emarginate; epidermis straw-coloured, polished; within white; cardinal teeth double in each valve; lateral teeth slightly arcuate.

SYNONYME.

U. STRAMINEUS, Nob. New Fresh Water Shells, pl. vii, fig. 3.
Cab. A. N. S., No. 20420.

OBSERVATIONS

Inhabits brooks or mill streams in Greene county, Alabama.

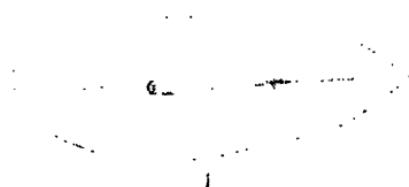
This species may be compared to some varieties of *siliquoides*, but is sufficiently distinct, being destitute of rays on the disk, and having remarkably prominent lines of growth. The *siliquoides* has not been found in Alabama.

UNIO PATULUS.

PLATE I.—FIG. 2.

DESCRIPTION

Shell ovate; convex anteriorly, and compressed and cuneiform posteriorly; substance of the shell thick on the anterior and thin on the posterior side; beaks not terminal, prominent, undulated, almost contiguous; umbonal slope undefined or obtusely rounded; epidermis brownish-yellow, with broad interrupted green rays composed of fasciculi of hair like lines; within white. ~~cardinal teeth~~, in the left valve pro-



1 *U. stramineus*, Cr. 2. *U. paludinaria*

foundly diverging; in the right valve single, robust, sulcated; lateral teeth rectilinear.

SYNONYME

U. rivulus, *Lea*. Trans. Amer. Phil. Soc., new series, vol. iii. p. 441, pl. xii. fig. 20.

Cab. A. N. S., No. 20424.

OBSERVATIONS

Inhabits the rivers of Tennessee and Kentucky, and appears to be comparatively rare. It may be distinguished from *U. clava* by its less oblique and more compressed form; and the beaks are less prominent and not terminal. The beaks are acutely pointed at the apex, and nearly touch each other; and they are somewhat flattened on the summit and have tubercular undulations. It is probable that *U. oriformis* is but a variety of this species.

UNIO HEMBELL.

PLATE LI.—FIG. 1.

DESCRIPTION

Shell elliptical, convex, posterior extremity angular, much above the line of the base; posterior slope with obtuse undulations; beaks eroded, scarcely elevated above the dorsal line; umbonal slope undefined; epidermis dark brown, becoming black with age, much wrinkled; within white; cardinal teeth robust, double in each valve, direct, profoundly striated.

Cab. A. N. S., No. 20422.

OBSERVATIONS.

Many specimens of this shell was sent from New Orleans in company with the *declivis*, *Mortoni*, *purpuratus*, &c., but the locality was not given. It has some affinity with the *subtentus*, but is thinner in substance, and differs widely in the posterior angle. It is never rayed, whilst that species has well marked interrupted rays. Some specimens which are destitute of the undulations on the posterior slope might be confounded with *U. complanatus*.

It is named in compliment to my friend William Hembel, Esq., Vice-President of the Academy of Natural Sciences of Philadelphia.

END

